RESEARCH IN LOGISTICS & PRODUCTION

DEVELOPMENT STRATEGY IN THE FIELD OF TRANSPORT OF PERISHABLE FOOD PRODUCTS BASED ON THE SWOT ANALYSIS

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Abstract A rise in international trade has increased the need for the transportation of perishable products from producers to end-users in distant locations. Such transportation requires extensive logistics planning to ensure the integrity of the goods transported. The article aims to identify and highlight key strengths and weaknesses of the company, and to identify opportunities and threats that can contribute to improving the competitiveness and thus the quality of services provided. The scope of the data included domestic and international transport of two product groups: food and agricultural products. Data were obtained from Eurostat and the Polish Central Statistical Office (GUS) for the years 2010–2015. In order to determine the strategy and enterprise that specializes in the transport of food products, a SWOT analysis was used. The SWOT analysis points clearly to the direction of the business's development towards strong expansion in the market which is demonstrated by the high figures for the strengths and opportunities (9.48). Compared with 2014, 2015 saw a 14.2% increase in the proportion of foods with a parallel drop in the transport of domestic agricultural produce by nearly 5%. The volume of road transport expressed in tonne/kilometre was 14.5% of the total of EU transport which places Poland second amongst the 28 EU states, after Germany and before Spain and France. The paper demonstrates that the most advantageous development strategy for a domestic transport provider is an aggressive (maxi–maxi) strategy to fully benefit from the opportunities with the use of its strengths.

Paper type: Case study

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1. INTRODUCTION

The work consists of a theoretical and empirical part. The theoretical part discusses the issues of transporting food products. However, in the empirical part, the analysis of a company providing logistics services in the field of transporting food products was made. The company's strengths and weaknesses were identified and identified, and opportunities and threats were identified that could contribute to improving the competitiveness and, hence, the quality of services provided.

The ATP contract, drawn up in Geneva on September 1, 1970, is one of the first international documents regarding food transport standards. Its content applies perishable food and special means of transport intended for these transports. According to the ATP agreement, when transporting perishable goods foodstuffs, it is necessary to use isothermal means of transport, ice cold stores and heated means of transport that meet the requirements specified in the contract (Umowa ATP, 1970). Refrigerated transport means must be so prepared to perform the entire service transport (loading, transport, unloading) temperature no exceeded the values given below for a specific type food article (Bieńczak, 2006).

Food transport is a very important element of the European Union. The preamble to Regulation No. 178/2002 states that "the flow of safe and wholesome food contributes to the health, general well-being of citizens and to their social and economic interests: it is an important link in the food chain, from raw material to consumer (Baryła-Paśnik, 2013).

Transport at controlled temperature has of course, the task is to provide products for consumption in safe for human health, that's why it's so important it is for it to take place in accordance with the rules that it compliance is to ensure the delivery of food without damage and infections and, as far as possible, eliminate the effects factors affecting the load during all work cargo, storage and transport (Stajniak, 2016). Therefore, it is very important to persons responsible for the transport chain of these articles (food logistics) were able to adjust the temperature, humidity, transport time, appropriate drivers and means of transport to the requirements for transporting particular goods food (Starkowski, 2012). In order for food to be safe for the consumer, it is not enough to produce it in accordance with hygienic and sanitary requirements. Transport is also an important factor. Safety in food transport can be defined as the confidence that food can be its ingredients, after

being transported to their destination, will be fit for consumption, i.e. that there will be no unacceptable risk of food degradation of products (Rymarz, 2010).

One of the effects of the development of civilisation is a successive increase in the importance of refrigerated transport of food products. Growing numbers of people in urban centres and their accompanying living needs must be satisfied by foods transported from places of cultivation or processing which are oftentimes located long distances away. Besides, the fast pace of living requires manufacturers to offer may refrigerated products, such as ready-made frozen dishes, pizzas, frozen vegetables which have been growing in demand year after year. Specialised refrigerated transport is required to satisfy these needs, in addition to production and trade. This specialist type of transport is indispensable for satisfying basic human needs (Zimon, 2014).

To ensure the freshness of food products, many online shopping stores that sell perishable food products operate refrigerated-type vehicles that can control their internal temperature using cooling equipment. In this case, customers can get more fresh food products and the company can achieve a higher level of customer satisfaction (Song, 2016).

Satisfaction of the demands of customers relating to the transport of foods requires the relevant knowledge and the appropriate means of transport which, in combination, will generate the expected results. The food industry is susceptible to changes relating to the increasing operational complexity, dynamic changes resulting from the satisfaction of the consumers' needs, new legal regulations and short shelf lives of products. Accordingly, a smart and efficient supply chain is required to satisfy the consumers' needs (Gajewska, 2014). Most of the food products perish quickly and hence they require to be transported in appropriate temperatures (Aung, 2014; Kilibarda, 2012).

In this research the author considers identification of a strategy for a transport company which specializes in the transport of perishable food products. This is, at the same time it is the main purpose of this paper. Transport of perishable goods involves transport of temperature-sensitive goods. It is an integrated component of cold chain logistics and helps in the management and control of the flow of the cold chain supply process. A rise in international trade has increased the need for the transportation of perishable products from producers to end-users in distant locations. Such transportation requires extensive logistics planning to ensure the integrity of the goods transported (Global Goods Transportation, 2017).

Transportation of food globally has drastically changed largely due to refrigeration. This all began as a result of the market created for the frozen meat trade by the first successful shipment of frozen sheep carcasses coming from New Zealand in the 1880s. (Tanner, 2016). Over a million refrigerated road vehicles are used to distribute refrigerated foods throughout the world (Billiard, 2005). Refrigerated transport is an important field if we consider that each product is transported 2.5 times on the average (Report IIR, 2002) In addition, foods are transported over an average distance of 2100 km before arriving on the US consumer's plate (Miller, 2001).

2. MATERIAL AND METHODS

The subject of the analysis is road transport of food products which has largely to be provided in controlled-temperature conditions. The statistical data do not provide information directly on the volume of such transport. Accordingly, data for two groups of products have been taken for the analysis: one including food products, beverages and tobacco, and the other with products of agriculture, hunting, forestry, fish and fishing products. The first group comprises mainly food products and the weight proportion of tobacco is small. The other group, on the other hand, points to the importance of the forest industry (mainly timber) influencing the volume of such transport operations (counted in thousands of tonnes).

Data were obtained from Eurostat and the Polish Central Statistical Office (GUS) for the years 2010–2015. In order to determine the strategy and enterprise that specializes in the transport of food products, a SWOT analysis was used.

3. ANALYSIS OF FOOD PRODUCTS TRANSPORT

Table 1 presents figures on domestic road transport of foods and agricultural products in 2010–2015.

Table 1 Domestic road transport of goods, by group (in thou. tonnes) own work (GUS, 2010–2015)

	2010	2011	2012	2013	2014	2015	Difference 2015-2014	
							in thousands	in %
Food products	94168	85866	84757	106813	96857	112894	16 037	14.20
Products of agriculture	66488	65670	70727	72775	79553	75771	-3782	-4.99
Total	160656	151536	155 484	179588	176410	188665	12255	6.49

Compared with 2014, 2015 noted a 14.2% increase in the proportion of food products with a parallel drop in domestic transport of agricultural products by nearly 5%. The volume of road transport expressed in tonne/kilometre was 14.5% of the total of EU transport which places Poland second amongst the 28 EU states, after Germany and before Spain and France. In summary, the proportion of both these groups increased by 6.49% compared to the preceding year. It is noteworthy that compared with the European market, the transit in Poland in 2015 noted the highest increase compared to 2014 in terms of the number of food products trans-

ported (112 894 thousand tonnes). After a drop in the transit across Poland in 2011, a continuous growth has been noted (Fig. 1).

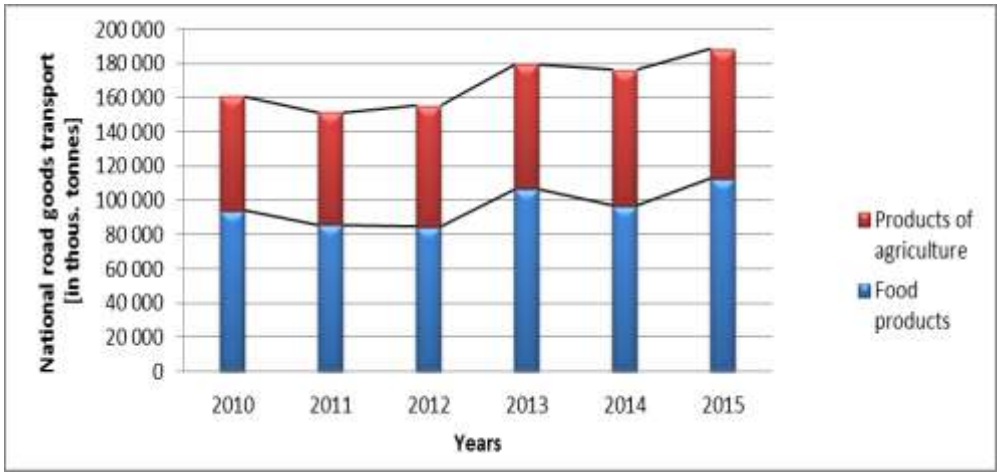

Fig. 1 Number of national goods in road transport by group of goods in Poland (GUS, 2010–2015)

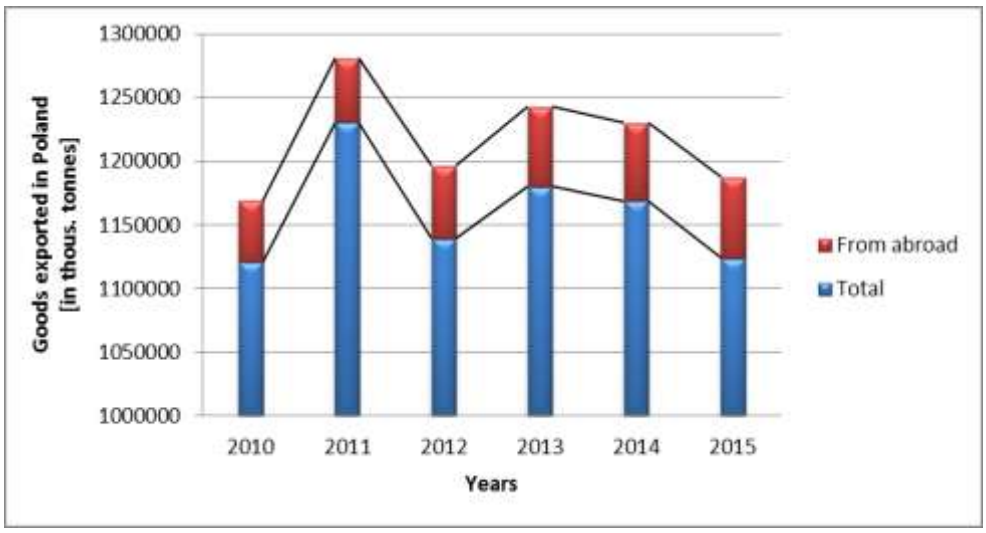

Fig. 2 Number of goods exported in Poland (GUS, 2010–2015)

The total volume of cargos dispatched in Poland in 2015 was 1 123 901 thousand tonnes which marked a drop compared to the preceding year by nearly 4%. In turn, the number of cargos dispatched from abroad in 2015 was 63 601 thousand

tonnes which marked an increase compared to the preceding year by 342 554 thousand tonnes (5.38%) (Fig.2).

Data from the European Commission (Eurostat) show that Poland is a leader in the European market in the loading of food products, in terms of the dynamics of growth between 2012 and 2013. Besides, it ranks third in terms of weight of the food cargos with 6 999 thousand tonnes, only after The Netherlands (7 752 thousand tonnes) and Germany (7 922 thousand tonnes) (Eurostat).

In 2015, a total of 1116056 thousand tonnes in cargo were unloaded in Poland and 55 756 thousand tonnes of cargos from abroad. In total figures, 2015 noted a drop compared with the preceding year by 4.19% and a small increase in unloads from abroad by nearly 1% (Fig. 3).

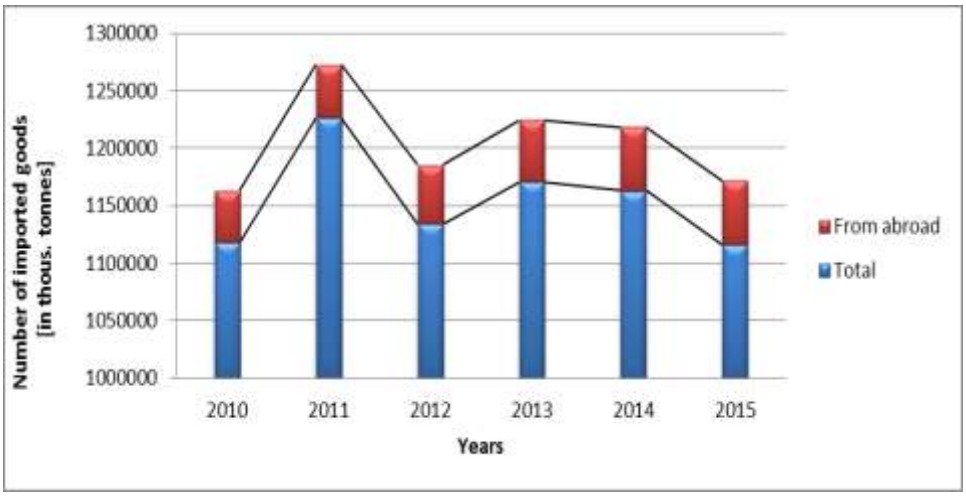

Fig. 3 Number of imported goods in Poland from road transport (in thous. tonnes) (GUS)

Compared with 2010, 2015 saw an increase in the number of cargos unloaded in Poland by 18.66% (in total) despite a drop by 8.16 % between 2011 and 2012.

4. SWOT ANALYSIS OF THE ACTIVITY OF A TRANSPORT ENTERPRISE IN THE FIELD OF PERISHABLE FOODS PRODUCTS – CASE STUDY

The subject of the case study will be to identify the prospect for engaging in the operations of food transport in the region of Małopolska. An analysis of statistical data shows an increased demand for the transport of foods and agricultural prod-

ucts. Accordingly, the aforementioned demand is to be checked using the example of Małopolska. To this end, a SWOT analysis was used to identify the potential for the functioning of a company offering such services.

4.1. Business profile and market situation

The subject of operations of the analysed business is the provision of food transport services mainly in the domestic market. The enterprise is at an initial stage of is operations with a prospect for participation in international transport after it becomes financially stable. The enterprise would have 5 cooler vehicles with the total weight of up to 3.5 tonnes and two sets of trucks with cooler trailers of the FRC class enabling the transport of food products at temperatures of +12°C to -20°C. All vehicles are provided with telematics solutions. The telematic systems operate equipment and dedicated applications using GSM mobile networks, WLAN, GPS and RDS-TMC and also road databases and reports from road traffic and weather monitoring devices and data from devices adapted for the system users (Badzińska, 2015).

The market of refrigerated transport in Poland's region of Małopolska is varied. There are businesses which engage in the controlled-temperature transport only and ones that provide refrigerated road transport as one of the elements of their operations. A main competitor in the domestic and international markets is Raben Fresh Logistics which provides comprehensive logistic services in food transport. Besides, there are many firms which offer refrigerated transport as one of the several profiles of their activities. There are also several firms in the market which offer refrigerated transport as their core business. This indicates that they are comprehensively prepared to provide such transport and are strong competitors for newly established businesses to operate in the same area.

As regards food producers in Małopolska, the leader is the Maspex Group in Wadowice which offers mainly beverages and fruit juices. Major businesses are also meat producers such as Szubryt, Rol-Pek, Markam. The dairy segment is dominated mainly by dairy cooperatives and companies which process fruit and vegetables such as Brassica, Zamvinex, Appol. The range of foods produced in Małopolska is huge and hence the conditions of their transport vary. Accordingly, a newly established business will need to be capable of adapting itself to the expectations of the customers.

4.2. Description of the research method

The scope of the study included data related to the transport of perishable food products in Poland and Europe in 2010–2015. The analysis used data available from Central Statistical Office in Poland and European Statistical Office (Eurostat).

Besides, the SWOT analysis was done for a provider of road transport in controlled-temperature conditions.

The SWOT analysis covers the internal and external environments in order to achieve a strategic objective for the development of the strategic choice. The internal and external environments are particularly good when companies vigorously promote their market expansion strategy; when the internal and external environments are particularly poor, companies should vigorously promote the market to maintain the strategy; if the internal environment is particularly good, and the external environment is particularly poor, the enterprise should choose a limited development strategy (Zhikang, 2017).

The SWOT analysis is a tool which enables an analysis and identification of strengths and weaknesses as well as existing and potential opportunities which exist externally (Helms, 2010).

The name of the analysis comes from the first letters of the key terms (Glass, 2015):

- S for Strengths – the strengths of the organisation which, used properly, will facilitate its development and which now distinguish the organisation in its environment; offer an advantage over the competitors;
- W for Weaknesses – the weaknesses of the organisation which, if not eliminated or neutralised, will hamper its development; these may be: lack of sufficient personnel qualifications, no division of tasks, poor work organisation or lack of other resources;
- O for Opportunities – the conditions which, skilfully used, may have a positive effect on business development;
- T for Threats – the factors which are currently not making it difficult for the organisation to function but may pose a threat in future for its efficiency.

4.3. SWOT analysis for a transport enterprise

The data for a food transport business were used to identify the strengths and weaknesses, opportunities and threats. The internal strengths, internal disadvantages, external opportunities and external threats are listed in Table 2. Table 2 uses the following symbols: S1÷S7 strengths, W1÷W3 weaknesses, O1÷O7 opportunities, T1÷T5 threats.

Table 3 shows the results of the SWOT analysis for a road transport service provider. The strengths and weaknesses, opportunities and threats are based on an analysis of food transport in Poland done in the preceding chapter and current available information. The weights for the particular groups are taken for domestic road transport.

Table 2 Identification internal and external conditions of enterprise

	Strenghts (S)	Weaknessess (W)
Internal conditions	S1. High quality of the service S2. Competitive prices S3. Good knowledge of the demands of the domestic and international markets S4. High competences of staff S5. Specialist vehicles S6. Regular control of transport conditions using telematic solutions. S7. Easy access to A4 motorway.	W1. Small base of potential customers W2. No recognisability in the market W3. Need to continuously train the staff
	Opportunities (O)	**Threats (T)**
External conditions	O1. Increased demand for food transport in Poland O2. Increased sales of ready-made frozen foods O3. Cooperation with food producers O4. Third-party transport for producers O5. High number of food producers O6. Drop in fuel prices O7. EU funds for new businesses	T1. Strong position of existing food transport businesses T2. Unfair competition T3. Risk of capital freezing T4. Closing of the Russian market to food produce T5. Stricter environmental protection standards

Table 3 Summary of the SWOT analysis for a transport enterprise

Results of the SWOT analysis								
Weight	Strenghts							
	S1	S2	S3	S4	S5	S6	S7	
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	Σ 1.00
	Weaknessess							
	W1			W2			W3	
	0.5			0.5			0.5	Σ 1.00
	Opportunities							
	O1	O2	O3	O4	O5	O6	O7	
	0.25	0.25	0.25	0.25	0.25	0.25	0.25	Σ 1.00
	Threats							
	T1	T2	T3	T4		T5		
	0.30	0.30	0.30	0.30		0.30		Σ 1.00

The SWOT analysis points clearly to the direction of the business's development towards strong expansion in the market which is demonstrated by the high figures for the strengths and opportunities (9.48) and which is presented in Table 4.

Table 4 Results of the SWOT analysis

Results of the swot analysis		
	Opportunities	Threats
Strenghts	9.48	5.38
Weaknessess	4.42	4.5

An aggressive (maxi-maxi) strategy should be pursued with the use of the business's strengths in the face of the expected opportunities. The result is, on the one hand, a high quality of the services, high competences of the staff and high-quality equipment. On the other hand, this involves opportunities such as an increase in refrigerated transport in Poland and in Europe, a drop in fuel prices, and an increased demand for highly-processed foods.

5. CONCLUSION

Compared with 2014, 2015 saw a 14.2% increase in the proportion of foods with a parallel drop in the transport of domestic agricultural produce by nearly 5%. The volume of road transport expressed in tonne/kilometre was 14.5% of the total of EU transport which places Poland second amongst the 28 EU states, after Germany and before Spain and France. The total number of cargos dispatched in Poland in 2015 was 1 123 901 thousand tonnes which marked a drop compared to the previous year by nearly 4%. In turn, the number of cargos dispatched from abroad in 2015 was 63 601 thousand tonnes which marked an increase compared to the preceding year by 342 554 thousand tonnes (5.38%). Compared with 2010, 2015 marked an increase in the number of cargos unloaded in Poland by 18.66 % (in total) despite a drop in the cargos by 8.16% between 2011 and 2012.

It was concluded in the case study based on the SWOT analysis that it is viable and profitable to pursue refrigerated road transport business. The SWOT analysis points clearly to the direction of the business's development towards strong expansion in the market which is demonstrated by the high figures for the strengths and opportunities (9.48). The paper demonstrates that the most advantageous development strategy for a domestic transport provider is an aggressive (maxi-maxi) strategy to fully benefit from the opportunities with the use of its strengths.

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BIOGRAPHICAL NOTES

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